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EXAMINER

NG, CHRISTINE Y

ART UNIT PAPER NUMBER

2663

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,646

Applicant(s)

HURTTA, TUIJA

Examiner

Christine Ng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/24/02, 8/28/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims are 1-16, 19-24 and 27-33 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 2003/0039249 to Basso et al.

Referring to claims 1 and 32, Basso et al disclose in Figure 5 a method for directing packet entities, said method comprising the steps of:

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Receiving (504) a first packet entity. Refer to Section 0042, lines 4-5.

Determining (512) that the packet entity is part of second packet entity (another fragment). At step 512, it is determined that the first packet entity represents a sequentially first fragment of a series of fragments and has more fragments following it ($IP.MF \neq 0$). Refer to Section 0043.

Checking (506) if the first packet entity contains information (content-based routing information) relating to direction (destination) of said entity. At step 506, a content-based information received flag is set to true upon receiving one or more fragments that completely identify necessary content-based information for the fragmented IP datagram. Refer to Section 0050, lines 1-21.

Storing (522-524) at least part of said first packet entity. At step 522, the content-based routing information from the packet entity is utilized as input to a routing function to create a PCCB, which is used to route further fragments of the same packet entity to a destination. At step 524, a PCCB is created to stored the content-based routing information from the packet entity. Refer to Section 0044.

Directing said first packet entity in accordance with said information. All fragments of the same fragmented IP datagram, including the first packet entity, are forwarded to the same destination. Refer to Section 0044, lines 1-16.

Referring to claim 2, Basso et al disclose in Figure 5 that the method further comprises the steps of:

Receiving (504) a third packet entity (another fragment). Refer to Section 0042, lines 4-5.

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Checking (512) if the third packet entity is part of the second packet entity. At step 512, it is determined that the received packet entity has more fragments following it (IP.MF \neq 0). Refer to Section 0043.

Forwarding said third packet entity in accordance with said stored information. All fragments of the same fragmented IP datagram are forwarded to the same destination. Refer to Section 0044, lines 1-16.

Referring to claim 3, Basso et al disclose in Figure 2 that said directing packet entities is to a required bearer of a plurality of bearers (a particular protocol 218, destination address 224, destination port 228, etc). The content-based routing information directs packet entities to a one of a plurality of bearers, which may be a particular protocol 218, destination address 224, destination port 228, etc. Refer to Section 0042, lines 18-29.

Referring to claim 4, Basso et al disclose in Figure 5 that the first packet entity is a fragmented packet. At step 506, if IP.FO=0, the first packet entity is a first fragment of a fragmented IP datagram. Refer to Section 0042, lines 5-14.

Referring to claim 5, Basso et al disclose in Figure 5 the step of determining (506) if the first packet entity is a fragmented packet. At step 506, if IP.FO=0, the first packet entity is a first fragment of a fragmented IP datagram. Refer to Section 0042, lines 5-14.

Referring to claim 6, Basso et al disclose in Figure 5 that the checking step (506) comprise checking if said first packet entity contains information relating to the required bearer. At step 506, a content-based information received flag is set to true upon receiving one or more fragments that completely

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identify necessary content-based information for the fragmented IP datagram.

Refer to Section 0050, lines 1-21.

Referring to claim 7, Basso et al disclose in Figure 2 that the information is at least one of source address, *destination address* (224), and identification in a fragment header. Content-based routing may be based on the destination address field 224 in the IP header 201, with all fragments of the same fragmented IP datagram forwarded to the same destination. Refer to Section 0042, lines 18-29 and Section 0044, lines 1-16.

Referring to claim 8, Basso et al disclose in Figure 9 that the storing step comprises storing at least one of a source port, a *destination port* (904), and identification in a fragment header. The content-based routing information, which is a destination port, is stored as a destination identifier 904 in the PCCB 900, since all fragments of the same fragmented IP datagram are forwarded to the same destination. Refer to Section 8, lines 1-23. Refer also to Figure 11 and Section 0058 where the destination identifier 904 represents different ports of router 1100 and fragments are sent to corresponding ports 1104(a)-1104(d).

Referring to claim 9, Basso et al disclose in Figure 5 the step of storing (524) fragmentation related information contained in said packet entity. At step 524, a PCCB is created to store the content-based routing information from the packet entity. Refer to Section 0044.

Referring to claim 10, Basso et al disclose the step of receiving another packet entity after a packet entity containing said direction information has been received and directed said another packet entity in accordance with the direction

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information. All fragments of the same fragmented IP datagram, including the first packet entity, are forwarded to the same destination. Refer to Section 0044, lines 1-16.

Referring to claims 11 and 33, Basso et al disclose a method for directing a first set of mutually related packet entities (set for which the first fragment of the fragmented IP datagram has not been received), the first set containing a second set of mutually related packet entities (set for which the first fragment of the fragmented IP datagram has been received); the packet entities of the second set containing information (destination address) relating to the direction of said packet entities; the second set of packet entities containing at least one packet entity. Figures 5-6 show that at (B), the process always loops back to initial step 504 of receiving another IP datagram fragment. The method comprises the steps of:

Receiving (Figure 5, 504) at least one of said packet entities. Refer to Section 0042, lines 4-5.

Determining (since no PCCB has been found; Figure 6, 604,606) that the at least one packet entity belongs to the first set of mutually related packets (set for which the first fragment of the fragmented IP datagram has not been received). Since no PCCB has been found, the packet must belong to a set of packets for which the first fragment of the fragmented IP datagram has not been received. Refer to Section 0047.

Determining (since no PCCB has been found; Figure 6, 604,606) that the at least one packet entity does not belong to the second set of packet entities

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(set for which the first fragment of the fragmented IP datagram has been received). Since no PCCB has been found, the packet must belong to a set of packets for which the first fragment of the fragmented IP datagram has not been received. Refer to Section 0047.

Storing (Figure 6, 622) at least part of one of the at least one packet entity. Refer to Section 0047.

Referring to claim 12, Basso et al disclose in Figure 6 that the method further comprises the step of storing (Figure 6, 622) the at least one packet entity. Refer to Section 0047.

Referring to claim 13, Basso et al disclose that the method further comprises the steps of:

Receiving (Figure 5, 504) at least one further packet entity. Refer to Section 0042, lines 4-5.

Determining (since PCCB has been found; Figure 6, 604,608,612,616) that the at least one further packet entity received belongs to the second set of packet entities (set for which the first fragment of the fragmented IP datagram has been received). Since a PCCB has been found, the packet must belong to a set of packets for which the first fragment of the fragmented IP datagram has been received, after checking that PCB.STATE=ACTIVE (616). Refer to Section 0048.

Directing (when PCB.STATE=ACTIVE; Figure 6, 516,518) said packet entities in accordance with said information (content-based routing information) contained in the at least one further packet entity. Refer to Section 0048.

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Referring to claim 14, Basso et al disclose in Figure 6 that said at least one packet entity is stored until a required direction has been determined. All "received fragments are queued in the fragment queue of the PCCB until a sequentially first fragment of the fragmented IP datagram is received, since it contains the necessary content-based routing information." (Section 0047, lines 40-44).

Referring to claims 15 and 16, Basso et al disclose in Figure 8 that when at least one packet entity has been stored for a predetermined time (timer expires) and said required direction (first fragment has not yet been received) has not been determined, a direction (removal) in which said at least one packet entity is to be sent is selected and said at least one packet entity is sent in said selected direction (removed from the queue). Refer to Section 0052.

Referring to claim 19, Basso et al disclose in Figure 2 that information (destination address 224) from a header of at least one packet entity is stored. At step Figure 5, 524, a PCCB is created to stored the content-based routing information from the packet entity. Content-based routing may be based on the destination address field 224 in the IP header 201, with all fragments of the same fragmented UP datagram forwarded to the same destination. Refer to Section 0042, lines 18-29 and Section 0044, lines 1-16.

Referring to claim 20, Basso et al disclose in Figure 2 that said stored information comprises at least one of the following: source address, *destination address* 224 and identification information. Content-based routing may be based on the destination address field 224 in the IP header 201, with all fragments of

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the same fragmented UP datagram forwarded to the same destination. Refer to Section 0042, lines 18-29 and Section 0044, lines 1-16.

Referring to claim 21, Basso et al disclose in Figure 2 that said direction comprises at least one of a PDP context or *one of a plurality of bearers* (a particular protocol 218, destination address 224, destination port 228, etc), or both. The content-based routing information directs packet entities to a one of a plurality of bearers, which may include a particular protocol 218, destination address 224, destination port 228, etc. Refer to Section 0042, lines 18-29.

Referring to claim 22, Basso et al disclose in Figure 2 that said direction information comprises a destination address. Content-based routing may be based on the destination address field 224 in the IP header 201, with all fragments of the same fragmented IP datagram forwarded to the same destination. Refer to Section 0042, lines 18-29 and Section 0044, lines 1-16.

Referring to claim 23, Basso et al disclose in Figure 11 or 12 an apparatus (router 1100 or load balancer 1200) for directing a plurality of related packet entities, only one or some of said packet entities containing information relating to the direction of said packet entities, said apparatus comprising:

Means (port Pi 1102) for receiving said plurality of packet entities.

Means (content-based routing device 1000) for determining a required direction address (content-based routing information) from at least two of said packet entities containing said information. The content-based routing device 1000 performs the content-based routing according to Figures 5-8. At step 506 of Figure 5, a content-based information received flag is set to true upon

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receiving *one or more* fragments that completely identify necessary content-based information for the fragmented IP datagram. Refer to Section 0050, lines 1-21.

Means (content-based routing device 1000) for directing said plurality of related packet entities in the required direction. Refer to Sections 0058-0059.

Referring to claim 24, Basso et al disclose in Figure 11 or 12 that said apparatus is usable as a node in a packet switched network. Refer to Sections 0058-0059.

Referring to claim 27, Basso et al disclose in Figure 5 a method for directing a packet to a required bearer of a set of bearers, the method comprising the steps of:

(a) Receiving (504) the packet. Refer to Section 0042, lines 4-5.

(b) Checking (512) if the packet is a fragmented packet. At step 512, it is determined that the first packet entity represents a sequentially first fragment of a series of fragments and has more fragments following it (IP.MF \neq 0). Refer to Section 0043. If it is:

(c) Checking (506) if the packet comprises information related to selection of the required bearer and if it does, storing (522-524) fragmentation related information contained in the packet. At step 506, a content-based information received flag is set to true upon receiving one or more fragments that completely identify necessary content-based information for the fragmented IP datagram. Refer to Section 0050, lines 1-21. At step 522, the content-based routing information from the packet entity is utilized as input to a routing function to

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create a PCCB, which is used to route further fragments of the same packet entity to a destination. At step 524, a PCCB is created to store the content-based routing information from the packet entity. Refer to Section 0044.

Referring to claim 28, Basso et al disclose in Figure 5 the further step of forwarding (516) the packet to the required bearer. Refer to Section 0045, lines 19-25 and Section 0050, lines 21-40.

Referring to claim 29, Basso et al disclose in Figure 5 that the method further comprises the steps of:

Receiving (506) a second packet. Refer to Section 0042, lines 4-5.

Forwarding said second packet to the required bearer based on the fragmentation related information. All fragments of the same fragmented IP datagram are forwarded to the same destination. Refer to Section 0044, lines 1-16.

Referring to claim 30, Basso et al disclose a method for directing a packet to a required bearer of a set of bearers, the method comprising the steps of:

(a) Receiving (504) the packet. Refer to Section 0042, lines 4-5.

(b) Checking (512) if the packet is a fragmented packet. At step 512, it is determined that the first packet entity represents a sequentially first fragment of a series of fragments and has more fragments following it (IP.MF≠0). Refer to Section 0043. If it is:

(c) Checking (506) if the packet comprises information (content-based routing information) related to selection of the required bearer and if it does not, storing (Figure 6, 606,610) fragmentation related information contained in the

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packet; and storing (Figure 6, 622) said packet. If the packet does not contain bearer information, a PCCB is created (606) with fragmentation related information such as PCCB.STATE=PASSIVE (610), and the fragment is stored (622). Refer to Section 0047.

Referring to claim 31, Basso et al disclose in Figure 6 that the method further comprises the steps of:

Receiving another packet (the first packet of the fragmented IP datagram) containing information (content-based routing information) related to the selection of the required bearer.

Forwarding said other packet and the stored packet to the required bearer. All "received fragments are queued in the fragment queue of the PCCB until a sequentially first fragment of the fragmented IP datagram is received, since it contains the necessary content-based routing information." (Section 0047, lines 40-44).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2003/0039249 to Basso et al in view of U.S. Publication No. 2002/0027907 to Tateoka.

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Referring to claims 17 and 18, refer to the rejection of claims 15 and 16. However, Basso et al do not disclose that the act of sending the at least one packet in the selected direction is performed when the store storing said at least one packet entity has more than a predetermined amount of data stored therein.

Tateoka discloses in Figure 12 a mechanism for allowing the sent packet holding mechanism 76 to store a new packet, using a method of discarding held packets when a predetermined period has elapsed from storage, or a method of discarding packets beyond a specific data amount. Refer to Section 0167.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the act of sending the at least one packet in the selected direction is performed when the store storing said at least one packet entity has more than a predetermined amount of data stored therein. One would be motivated to do so in order to prevent overflow of the storage device and free resources.

6. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2003/0039249 to Basso et al.

Referring to claim 25, Basso et al do not disclose that said network is a GPRS network.

However, Basso et al disclose that the network in the Internet. GPRS is packet-based wireless communication service that provides Internet service to mobile phones, so that users can interact with the Internet using mobile phones. Furthermore, Basso et al disclose that the invention can be used in other embodiments. Refer to Section 0060. Therefore, it would have been obvious to

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one of ordinary skill in the art at the time the invention was made to include that said network is a GPRS network, the motivation being so that the network can also support Internet service for wireless users.

Referring to claim 26, Basso et al do not disclose that the apparatus is a GGSN.

However, Basso et al disclose in Figure 10 that the routing device 1000 is located at a the core or at the edge of the Internet network, in order to connect users to outside networks. Refer to Section 0057, lines 1-6. A GGSN performs a similar function as the router and serves as a gateway to outside networks, but in a wireless GPRS environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that said network is a GPRS network, the motivation being so that the network can also support Internet service for wireless users.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng *W*
October 24, 2005

Ricky Ngo
RICKY NGO
PRIMARY EXAMINER
10/31/05